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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,439	07/05/2001	Tue Nguyen	SIM077	1885

7590 10/21/2003
Tue Nguyen
496 Olive Ave.
Fremont, CA 94539

EXAMINER

HOANG, QUOC DINH

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/898,439	Applicant(s) NGUYEN ET AL.	
	Examiner Quoc D Hoang	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-16 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Amendment filed on 7/28/2003 has been entered and made of record as Paper No. 10.

In Amendment, applicant cancels claim 20. Claims 21-24 are newly added. Claims 1-16 and 21-24 are remained for examination in Paper No. 10 is acknowledged. Applicant's remarks have been considered.

Drawings

2. The informal drawings are not of sufficient quality to permit examination. Accordingly, new drawings are required in reply to this Office action.

Applicant is given a TWO MONTH time period to submit new drawings in compliance with 37 CFR 1.81. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a). Failure to timely submit new drawings will result in **ABANDONMENT** of the application.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. Nowhere in the specification shows or discloses the helical electrode is a **3-dimensional** helical electrode.

Claims 2-16 and 21-23 are also rejected because they depend on the rejected base claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 21-23, as best understood, is rejected under 35 U.S.C 102(b) as being anticipated by Ngan., (US Patent 5,919,342).

Regarding claim 1, Ngan., Fig. 2, and related text on column 1 which discloses an apparatus to perform semiconductor processing, comprising: a process chamber 170 (col. 1, lines 35-55 and Fig. 2); a plasma generator 188 for generating a plasma in the process chamber 170 (col. 1, lines 35-55 and Fig. 2); and a helical electrode 186 coupled to the output of the plasma generator 188 (col. 1, lines 35-55 and Fig. 2).

Regarding claims 21-23, Ngan., discloses the helical electrode 186 is helical coil, wherein the spiral turns are similar in size, and has an elongated cross section (see Fig. 2, electrode 186).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-9, 12-16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngan., (US Patent 5,919,342) and in view of Qian et al., (US Pat 6,447,636).

Regarding claims 1 and 24, Ngan., Fig. 2, and related text on column 1 which discloses a multi-layer processing chamber, comprising a gas source 192 and 194 coupled to the chamber 170 for introducing a processing gas into a reaction chamber 170 having a sample disposed therein (col. 1, lines 35-55 and Fig. 2); a solid state RF plasma source 188 coupled to the chamber 170 to excite the processing gas (col. 1, lines 35-55 and Fig. 2); and a helical electrode 186 adapted to excite the plasma (col. 1, lines 35-55 and Fig. 2).

Ngan does not clearly teach a controller coupled to the RF plasma source to pulse the RF plasma source for each deposited layer.

However, Qian et al discloses in figure 1 and on page 10, lines 1-67 a system controller 140 coupled to the solid state RF plasma source 105 to pulse the solid state RF plasma source 105 for each deposited layer (col. 10, lines 1-10 and Fig. 1). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the controller teaching of Qian et al with Ngan's plasma chamber, because it would have improved the characteristic, such as uniformity of the deposited layer as taught by Qian et al, column 2, lines 12-35.

Regarding claim 2, Qian et al., discloses the spiral coil electrode 102 is external to the process chamber 100 (col. 3, lines 55-67 and Fig. 1).

Regarding claim 3, Qian et al., discloses a dielectric wall 103 position between the chamber 100 and the spiral coil electrode 102 (col. 3, lines 55-67 and Fig. 1).

Regarding claim 4, Qian et al., discloses the dielectric wall 200 is a flat plate (col. 16, lines 30-40 and Fig. 4c).

Regarding claims 5 and 6, Qian et al., discloses the dielectric wall 103 is concave or convex (col. 3, lines 55-67 and Fig. 1).

Regarding claim 7, Qian et al., discloses the dielectric wall 103 is a tube (col. 4, lines 10-15 and Fig. 1A).

Regarding claim 8, Qian et al., discloses the dielectric wall 103 projects through a center of the spiral coil electrode 102 (col. 4, lines 10-15 and Fig. 1A).

Regarding claim 9, Ngan., discloses the helical electrode 186 is internal to the process chamber 170 (see Fig. 2).

Regarding claims 12-16, Qian et al., discloses in figure 1 and on page 10, lines 1-67 a system controller 140 coupled to the solid state RF plasma source 105 to pulse the solid state RF plasma source 105 for each deposited layer (col. 10, lines 1-10 and Fig. 1).

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngan., (US Patent 5,919,342) and Qian et al., (US Pat 6,447,636) as applied to claim 1 above, and further in view of Ishizuka et al (US Pat 5,531,834).

Ngan does not disclose wherein the distance between the helical electrode 186 and a workpiece 175 is less than five inches. However, Ishizuka et al., discloses the apparatus is adapted to receive a workpiece W in the chamber 1 and wherein the distance between the coil electrode 13 and the workpiece W is less than five inches (col. 12, lines 34-43 and Fig. 1). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the distance between the coil electrode and the workpiece teaching of Ishizuka et al with Ngan's plasma chamber, because it would have allowed the plasma to be generated as taught by Ishizuka et al, column 12, lines 134-45.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (703) 306-5795. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308-4910. The fax phone numbers of the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Quoc Hoang
Patent examiner/AU 2818.


HOAI HO
PRIMARY EXAMINER